

Claims

- [c1] 1. An RF structure comprising:
a dielectric material having metal inductor wires of a first thickness and a metal bond pad having a major area of a second thickness located on a surface thereof, wherein said first thickness is greater than said second thickness.
- [c2] 2. The RF structure of Claim 1 wherein the metal inductor wires and the metal bond pad are both composed of a conductive metal that has a resistivity of about 3 micro-ohms*cm or less.
- [c3] 3. The RF structure of Claim 2 wherein the conductive metal is selected from the group consisting of Cu, Al, Pt, Ag, Au, and alloys thereof.
- [c4] 4. The RF structure of Claim 1 wherein the metal inductor wires and the metal bond pad are both composed of Al.
- [c5] 5. The RF structure of Claim 1 wherein the first thickness is from about 2000 to about 5000 nm.
- [c6] 6. The RF structure of Claim 1 wherein the second thickness is from about 500 to about 1500 nm.

- [c7] 7. The RF structure of Claim 1 wherein the dielectric layer is an insulator having a dielectric constant less than 4.0 or an insulator having a dielectric constant of about 4.0 or greater.
- [c8] 8. The RF structure of Claim 1 wherein the dielectric material is selected from oxides nitrides, oxynitrides, polyimides, polyimines and Si-containing polymers.
- [c9] 9. The RF structure of Claim 1 further comprising a passivation layer located on exposed walls of said metal wire inductor and portions of said metal bond pad.
- [c10] 10. A method of fabricating an RF structure including an optimized padset and a high performance inductor comprising:
forming a metal layer on a surface of a dielectric material; and
patterning said metal layer so as to form metal inductor wires of a first thickness and a metal bond pad having a major area of a second thickness located on a surface of said dielectric material, wherein said first thickness is greater than said second thickness.
- [c11] 11. The method of Claim 10 wherein the patterning comprises first providing a structure having metal inductor wires and a metal bond pad of the first thickness and

then selectively etching the metal bond pad to thin said metal bond pad to said second thickness.

[c12] 12. The method of Claim 11 wherein the etching comprises a timed etching process.

[c13] 13. The method of Claim 11 wherein the providing the structure having metal inductor wires and a metal bond pad of the first thickness includes an inductor wire patterning step.

[c14] 14. The method of Claim 11 further comprising forming a passivation layer on surfaces of said structure having metal inductor wires and a metal bond pad of the first thickness.

[c15] 15. The method of Claim 14 wherein said passivation layer atop the metal bond pad is removed prior to said etching.

[c16] 16. The method of Claim 10 wherein said patterning comprises wire bond pad photolithography patterning, wire bond pad etching to form said wire bond pad of said second thickness, and inductor wire photolithography and etching.

[c17] 17. The method of Claim 10 further comprising forming a conductive wire in contact with said wire bond pad

having said second thickness.